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Always On? Explicating Impulsive Influences on Media Use

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Abstract

Many people live in a media-rich environment, where media content and mediated communication options are easily accessible and almost always available independent from time and place. We argue that such a media-rich environment that constantly reminds people of all available media use options can be a strong trigger of impulsive media use. In this chapter, we explicate the automatic, impulsive process that is likely to facilitate such media use, and argue that investigating impulsive influences will provide a more complete understanding of the processes that drive people's media use and various media-related behaviors in our current media-rich environment.

Always On? Explicating Impulsive Influences on Media Use

Many people, especially in industrialized countries, live in a media-rich environment where media content and mediated communication options are easily accessible and almost always available independent from time and place. The widespread use of mobile Internet connections and portable devices, in particular, appear to induce many people to be permanently online and permanently connected (POPC; Vorderer & Kohring, 2013) and to develop an always-on-mentality (Hefner & Vorderer, 2017). Such an 'POPC' media-rich environment that constantly confronts people with–often attractive–media-related stimuli may trigger media use in a rather impulsive fashion (e.g., Bayer, Campbell, & Ling, 2016; Hofmann, Reinecke, & Meier, 2017; LaRose, 2010; Naab & Schnauber, 2016). With impulsive media use we refer to media use that is facilitated by automatic positive affective (e.g., because of the rewarding properties of media) and behavioral approach reactions (e.g., because of media habits) to media-related stimuli. This can be opposed to reflective media use that is facilitated by both reasoned judgments and evaluations, and conscious goal-directed planning (e.g., one's deliberate intention to watch a YouTube video to get entertained). In the present chapter we propose that, in addition to investigating reflective influences on media use, investigating impulsive influences adopting a process-oriented approach provides a more complete understanding of people's media use and media-related behaviors in our current 'permanently online' media-rich environment.

We believe that impulsive influences on media use deserve more research attention for several reasons. First, despite growing interest on media habits (e.g., LaRose, 2010), traditionally, research and theories in communication science and media psychology emphasized reflective determinants and processes by which people deliberately decide to use media (e.g., reasoned

attitudes, behavioral intentions, expected gratification). Examples (for an overview, see, e.g., Hartmann, 2009) include studies in the tradition of the uses-and-gratification approach (e.g., Katz, Blumler, & Gurevitch, 1974; Ruggiero, 2000; see also Malka, Ariel, Avidar, & Cohen, this volume), the information utility model (e.g., Atkin, 1972), or applications of the Theory of Reasoned Action to media choice like the technology acceptance model (e.g., Davis, Bagozzi, & Warshaw, 1989). However, dual-systems models of behavior, such as the Reflective Impulsive Model (Strack & Deutsch, 2004), suggest that behavior can also be determined by more automatic, impulsive determinants and processes (Hofmann, Friese, & Strack, 2009).

Second, even though other lines of research and theorizing provided important insights into how media users' *tendencies* to act without much deliberation are related to their media use (e.g., media habits, trait impulsivity or low trait self-control; Bayer et al., 2016; LaRose, 2010; Minear, Brasher, McCurdy, Lewis, & Younggren, 2013; Panek, 2014), they usually do not directly measure the automatic, impulsive processes that are assumed to play a role in this. Thus, from studies adopting such an approach that also predominantly used explicit self-report measures, we can only draw indirect conclusions regarding the influence of impulsive processes on media use. Thus, a more direct, *process-oriented* approach measuring automatic, impulsive processes may advance our knowledge regarding the impulsive influences on media use (cf. Hofmann, Friese, & Wiers, 2008, who made a similar argument in the context of health behavior).

Third, our 'POPC' media-rich environment appears to pose a big challenge for media users' self-control as recent research suggests that media users frequently give in to the temptation to use media despite their intentions to do other things (Du, Van Koningsbruggen, & Kerkhof, 2016;

Hofmann, Vohs, & Baumeister, 2012; Reinecke & Hofmann, 2016). Since automatic, impulsive processes play an important role in understanding self-control failures (Hofmann et al., 2009), it seems timely to pay more research attention to the automatic, impulsive processes that influence media use.

We begin this chapter by considering impulsive influences on media use from the perspective of the Reflective Impulsive Model (Strack & Deutsch, 2004); a frequently used dual-system model of behavior from social psychology proposing that behavior is determined by both a reflective and an impulsive system. We will review arguments and research suggesting the relevance of studying automatic, impulsive processes in the context of media use in media-rich environments in general, and in the context of media-related self-control dilemmas in particular. Next, we review a number of specific media-related behaviors, often involving a self-control dilemma, that have received increasing attention among scholars examining the 'permanently online'-environment and that may particularly benefit from adopting a process-oriented focus on impulsive influences. Finally, we raise some further issues for consideration of studying impulsive influences in a media-rich environment.

Impulsive influences on media use

The Reflective Impulsive Model (Hofmann et al., 2009; Strack & Deutsch, 2004), suggests that behavior is guided by two different systems: the reflective and impulsive system. This model assumes that impulsive, automatic forms of behavior result from an impulsive system in which people quickly and effortlessly process stimuli in terms of their affective and motivational significance through the process of spreading of activation in an associative network. In contrast,

deliberate, controlled forms of behavior are assumed to originate from a slow-acting, low-capacity reflective system in which people effortfully process stimuli in terms of their significance for long-term goals and personal standards through syllogistic reasoning (for an overview of reflective influences on media choice, see, e.g., Hartmann, 2009). Because the processes of behavior determination differ between the two systems, it has been proposed that different measurement strategies should be used to capture either reflective or impulsive influences on behavior (Hofmann et al., 2009).

Hofmann and colleagues suggest that *explicit* self-report measures are appropriate for assessing reflective influences on behavior because "the symbolic content in the reflective system forms the basis of conscious experiences that can be communicated to others" (Hofmann et al., 2009, p. 167). Thus, by employing explicit self-report measures of constructs associated with the deliberate use of a particular medium (e.g., attitudes, gratifications, behavioral intentions), for instance, one taps into the reflective precursors of media behavior. In contrast, the use of *implicit* measures is recommended for capturing impulsive precursors of behavior. According to Hofmann et al., measures like the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998) and the Affect Misattribution Procedure (Payne, Cheng, Govorun, & Stewart, 2005) are particularly suitable to assess people's automatic *affective* reactions to particular stimuli of interest. To assess people's automatic *behavioral* reactions, in addition, procedures that assess approach-avoidance reactions to stimuli, such as the Stimulus-Response Compatibility task (e.g., Field, Mogg, & Bradley, 2005) or the Approach Avoidance Task (e.g., Peeters et al., 2012) could be used. These implicit measurement procedures are deemed appropriate to capture impulsive precursors of behavior as they tap into the associative structure underlying hedonic or behavioral

reactions in response to stimuli, assess spontaneous (as opposed to more consciously controlled) reactions, and are sensitive to detect state influences in addition to stable trait influences (Hofmann et al., 2009).

Returning to the Reflective Impulsive Model, impulses are thus proposed to emerge in the impulsive system from the activation of associative clusters in long-term memory (Hofmann et al., 2009; Strack & Deutsch, 2004). Founded on the learning history of the individual, these associative clusters have been created from the joint activation of external stimuli, the individual's affective reactions to these stimuli, and the behavioral tendencies associated with these stimuli (Hofmann et al., 2009). For instance, through repeated Facebook use, the concept of Facebook may become associated with both positive affective reactions to the Facebook experience and the behavior that caused the positive affective reaction (e.g., tapping on the Facebook app icon on your smartphone). As a result, a "Facebook-cluster" can be created in the individual's long-term memory. Once created, it can easily be re-activated by perceptual input (e.g., seeing the Facebook logo) or internal triggering conditions (e.g., the thought of checking Facebook; Hofmann et al., 2009; Strack & Deutsch, 2004). It is argued that these associative clusters enable individuals to quickly evaluate and respond to the environment following one's needs and previous learning experiences (Hofmann et al., 2009). This means that for a frequent Facebook user, exposure to a Facebook-cue (perceptual or internal) in a future situation is likely to re-activate the "Facebook-cluster". This, in turn, is proposed to automatically trigger the associated positive affect and behavioral tendency to approach it, resulting in an impulse to use Facebook (Hofmann et al., 2009).

Because our media-rich environment and certain features of information and communication technologies (ICTs; e.g., instant messages, push notifications) provide constant reminders of media, we propose that many everyday media uses are likely to be driven by the above described automatic, impulsive processes (also see Hofmann et al., 2017). Furthermore, as argued by Hofmann and colleagues (2017), previous literature is consistent with the idea that people form automatic affective and approach reactions to media and ICTs. Specifically, they propose that the immediate gratifications associated with the habitualized usage of media and ICTs makes it highly likely that people possess such automatic, impulsive reactions. We will now consider these arguments and describe some initial empirical evidence in support of this reasoning.

Hofmann et al. (2017) propose that people learn to associate positive affective states with certain media behaviors because they frequently use media to fulfill various psychological and social needs. Indeed, a large literature suggests that people frequently use media because they provide numerous immediate gratifications (e.g., Błachnio, Przepiórka, & Rudnicka, 2013; Katz et al., 1974; Reinecke, Vorderer, & Knop, 2014). In addition, Hofmann et al. note that, through operant conditioning, media users learn to approach media that can improve their current mood (Zillmann, 1988). Social media users, for instance, may learn that they can improve their mood by browsing a social network site (Johnson & Knobloch-Westerwick, 2014). Other findings indicate that media use provides a reliable source of pleasure (e.g., Vorderer, Klimmt, & Ritterfeld, 2004), has been associated with increases in subjective wellbeing (see Reinecke, this volume), and is viewed as a highly desirable activity (Hofmann et al., 2012). Accordingly, Hofmann et al. (2017) propose that it is likely that people form strong and positive automatic

affective reactions to media and ICTs. Indeed, recent research appears to provide initial support for this idea (Van Koningsbruggen, Hartmann, Eden, & Veling, 2016).

In their research, Van Koningsbruggen et al. (2016) employed the Affect Misattribution Procedure (AMP; Payne et al., 2005)–an implicit measure–to assess social media users' automatic affective reactions to social media cues. In this procedure, participants complete a series of trials in which they are first presented with a picture containing a social media or control cue (prime stimulus; 75 ms), followed by a blank screen (125 ms) and a Chinese pictograph (100 ms). Participants have to rate the pleasantness of the Chinese pictograph and their ratings are assumed to reflect the (misattributed) affective reaction to the prime stimulus (i.e., the social media or control cue) presented at the start of the trial. The social media cues were Facebook-related pictures (e.g., the Facebook logo) and the control cues were pictures of office supplies (e.g., a stapler). Results demonstrated an interaction between prime stimulus and social media use on the proportion of pleasant responses to the primes. Specifically, frequent Facebook users showed more favorable affective reactions to the Facebook (vs. control) cues, while occasional Facebook users' affective reactions did not differ between Facebook and control cues. In a second study this effect was replicated, and, in addition, the positive affective reactions to the Facebook cues appeared to be meaningfully related to Facebook cravings experienced by the participants. This research thus supports the proposition that media users possess strong and positive automatic affective reactions to media content.

Based on the literature suggesting that media use is often highly habitualized (Bayer et al., 2016; LaRose, 2010; Naab & Schnauber, 2016), Hofmann et al. (2017) further propose that it is likely

that media users possess strong automatic approach reactions to media content and ICTs. Through repeated use of media in similar situations, media users learn to associate a certain context with using particular media and the expected outcomes of this media use, herewith developing a mental script (Naab & Schnauber, 2016). The behavioral response in this mental script–the habit–might be activated automatically when media users find themselves again in that situation (Naab & Schnauber, 2016). Think of, for instance, a person who more or less automatically checks his or her Facebook account when having breakfast as a result of performing this behavior since that person bought a smartphone. While this indeed makes it likely that people possess strong automatic approach reactions to media content and ICTs, this has not yet empirically been demonstrated as far as we know. Research could test this proposition by following a similar set-up as Van Koningsbruggen et al. (2016), but instead of measuring automatic affective reactions, include a task that captures participants' spontaneously activated behavioral reactions to media stimuli. This could, for instance, be done by using a joystick task that measures automatic approach-avoidance tendencies via push and pull reactions to stimuli (e.g., Peeters et al., 2012).

When do these automatic, impulsive processes with regard to media and ICTs influence media users' behavior? The Reflective Impulsive Model proposes that the reflective and impulsive system both determine behavior by the activation of behavioral schemas (Hofmann et al., 2009; Strack & Deutsch, 2004). Often, the behavioral schemas activated in the impulsive and reflective systems are compatible. For instance, acting on the impulse to watch a YouTube video can concur with one's deliberate plan to look for entertainment. In many other situations, however, the behavioral schema activated in the impulsive system is incompatible with the schema

activated in the reflective system. For instance, when the strong impulse to watch a YouTube video conflicts with one's deliberate plan to study for an important exam. In situations like this, the Reflective Impulsive Model suggests that the schema that is activated most strongly eventually determines the individual's course of action (Hofmann et al., 2009; Strack & Deutsch, 2004).

Importantly, the reflective system requires a high amount of control resources to determine behavior (i.e., people have to be able and motivated to engage the reflective system), while the impulsive system only requires relatively few resources (Hofmann et al., 2009). Thus, in general, when sufficient motivation and control resources are available, the reflective system (e.g., one's reasoned actions) is assumed to determine behavior. However, when people are unmotivated or control resources are low, the automatic, impulsive processes are assumed to guide behavior. Both situational (e.g., ego depletion, cognitive load, or alcohol intoxication) and dispositional factors (e.g., working memory capacity, trait self-control) can reduce the individual's available control resources (e.g., Hofmann et al., 2009).

Given that people frequently make media choices when control resources are low (e.g., Hofmann et al., 2012; Reinecke, Hartmann, & Eden, 2014) and live in an environment where they are constantly exposed to media-related stimuli that likely trigger strong and automatic affective and approach reactions, investigating impulsive processes will provide a more complete understanding of media use in our current 'POPC' media-rich environment. This will be particularly true for media choices made in situations in which the media-related behavioral schemas activated in the impulsive and reflective systems are incompatible. Under these

circumstances, the stronger the impulsive reaction, the more likely impulsive processes drive people's media use, particularly when their control resources are low.

Conflicts between the impulsive and the reflective system in media behaviors

Recent findings suggest that the media-related behavioral schemas activated in the impulsive and reflective systems indeed often appear to be incompatible. For instance, experience sampling research showed that people's media use conflicted most often with efficient time use, not delaying things, and professional and educational achievements (Hofmann et al., 2012, see also supplementary material; Reinecke & Hofmann, 2016). In another study, daily social media users reported that goals, tasks or activities related to school/study, work, and doing things at home (housework) were most in conflict with their social media use (Du et al., 2016). These conflicts between media use and other important goals might in part be a reflection of incompatible behavioral schemas activated in the impulsive and reflective systems. When the two systems are in conflict, that is, when our impulses are in conflict with reasoned actions, media users face a prototypical self-control dilemma that requires choosing between an immediately rewarding behavior (e.g., watching an entertaining YouTube video) and a behavior that results in a more valuable yet delayed reward (e.g., studying to pass an exam). To resist their impulses, people need to exert self-control, which can be defined as "the ability to override or change one's inner responses, as well as to interrupt undesired behavioral tendencies (such as impulses) and refrain from acting on them" (Tangney, Baumeister, & Boone, 2004, p. 274).

Unfortunately, media users appear to frequently fail in exerting self-control. Experience sampling research, for instance, showed that in almost half of the instances people give in to their

desires to use media despite their willingness to resist them (Hofmann et al., 2012). Another survey among college students revealed that visiting social network sites and online video viewing were negatively related to self-control, and that online video viewing was associated with less time spent on schoolwork (Panek, 2014). Additionally, it has been found that daily social media users estimated that about one-third of their time spent on social media during a typical day was perceived as giving in to temptation (Du et al., 2016). Together, these findings suggest that despite their intentions to do other things (i.e., the behavioral schema activated in the reflective system), people often find themselves using media (i.e., the behavioral schema activated in the impulsive system).

Media use thus appears to be a seductive temptation in everyday life that people often cannot resist. Research and theorizing on impulse and self-control suggest that such self-control failures are driven by automatic, impulsive processes that override the influence of the reflective system (e.g., Hofmann et al., 2009). Hence, a process-oriented approach in which these impulsive processes are directly measured can increase our understanding of media-related self-control failures. Intriguingly, conflicts between the impulsive and reflective system appear to underlie many media-related behaviors that have received increasing attention among scholars examining the 'permanently online' environment. The predictive validity of research and theory related to these specific behaviors may thus be further improved by paying more attention to automatic, impulsive processes. In the next section, we will describe some examples of media-related behaviors we potentially might better understand by including measurements of impulsive processes.

Many 'permanently online' phenomena may be impulsive

Many phenomena that are associated with our media-rich environment reveal typical characteristics of impulsive behavior, including online procrastination or cyberloafing (Lavoie & Pychyl, 2001; Vitak, Crouse, & LaRose, 2011), mobile phone checking ("phubbing"; Roberts & David, 2016), media-multitasking (Van der Schuur, Baumgartner, Sumter, & Valkenburg, 2015; also see David, this volume, and Wang, this volume), and guilty media pleasures (Panek, 2014), including binge-watching (Pena, 2015). However, although these 'POPC' behaviors received increasing attention among scholars, their explanation has not, to the best of our knowledge, been thoroughly based on theorizing on and directly investigating the role of impulsive influences.

Online procrastination, for example, can be defined as "the act of needlessly delaying tasks to the point of experiencing subjective discomfort" (Solomon & Rothblum, 1984, p. 503) by engaging in online use. Typically, the primary task at hand is perceived as aversive, because it seems effortful or potentially frustrating–like writing an article. Procrastinators revert from tackling the primary task (often despite better knowledge) by consecutively engaging for short intervals in non-task related behaviors that are more pleasurable, like using media (Reinecke & Hofmann, 2016). While procrastinating, these unrelated activities are rationalized as preparatory steps toward the main task. For example, "quickly checking Facebook" may be considered a preparatory step toward writing an article. However, such perceptions may only represent reflective efforts to justify the unrelated media use. This typical characteristic of online procrastination reminds of underlying goal conflicts commonly observed in impulsive behavior.

Similarly, cyberloafing, that is, engaging in non-work related media activities at work (Vitak et al., 2011), may often result from impulsive processes. This should be particularly true if people engage in cyberloafing simply because they perceive non-work related media options as more pleasurable than the primary working task. The idea that cyberloafing resembles impulsive behavior is also consistent with the finding that the behavior is more common among people with low trait (Restubog, Garcia, Wang, & Cheng, 2010) or state self-control (e.g., due to insufficient sleep, Wagner, Barnes, Lim, & Ferris, 2012). People that generally score low on self-control or momentarily lack the resources to engage in self-control are less likely to successfully regulate an impulse (Hofmann et al., 2009).

Characteristics of impulsive processes can also be identified in media-multitasking, that is, "simultaneously engaging in two or more types of media or using media while engaging in non-media activities" (Van der Schuur et al., 2015, p. 205), and interruptive mobile phone use (Brown, Manago, & Trimble, in press). Multitasking implies that people switch back-and-forth their attentional focus on several available options (van der Schuur et al., 2015). As a variant of multitasking, people may also interrupt an ongoing face-to-face conversation by shifting their attentional focus, for instance, to their mobile phone (Humphreys, 2005; also see Rieger, this volume). A few studies show that media-multitasking is linked to trait impulsivity (Minear et al., 2013; Sanbonmatsu, Strayer, Medeiros-Ward, & Watson, 2013). In addition, media-multitasking is often characterized by goal conflicts like attending to a tedious primary task in the presence of more pleasurable options. For example, in a study by Calderwood, Ackerman, and Conklin (2014) students were more inclined to engage in media-multitasking if they were less motivated to complete their homework (as a primary task). Apparently, less motivated students found

available media options relatively more tempting and were, thus, more inclined to impulsively engage in multitasking. Furthermore, individuals that are particularly sensitive to notice available media options in their environment and that struggle to filter out their presence as "irrelevant information" may be more prone to engage in media-multitasking, although existing evidence regarding this assumption is mixed (e.g., Van der Schuur et al., 2015). The idea, however, fits to the notion that media-multitasking is guided by impulsive influences, because the disability in executive functioning to neglect irrelevant cues seems closely linked to impulsivity (e.g., in ADHD disorder; Kenemans et al., 2005).

Further considerations of studying impulsive influences in a media-rich environment

The emphasis of this chapter on impulsive processes should not be mistaken as a call to solely focus on impulsive influences triggering 'POPC' behavior. Rather, as the prior discussion of goal conflicts and self-regulatory demands arising in the face of impulses already shows, to gain a complete picture, parallel reflective processing and self-control capacity must be examined, too. According to dual-systems perspectives on self-control (Hofmann et al., 2009), impulsive and reflective precursors, as well as situational and dispositional boundary conditions need to be taken into account for a comprehensive study of behavior. For example, reflective precursors like deliberate and critical evaluations of a situation (e.g., "using Facebook now may distract me for a longer time than I think") and existing standards to restrain behavior in accordance with one's long-term goals (e.g., "I told myself to not use Facebook before finishing homework"), may effectively shield individuals against "acting on impulse". Furthermore, to what extent an arising impulse eventually guides behavior also depends on the situational capacity of the reflective system to regulate the impulse. According to Hoffmann et al., with diminished capacity of the

reflective system (e.g., due to momentary depletion or cognitive load) "impulse-triggered behavioral schemas are more likely to exert an influence on overt behavior" (2009, p. 166). Accordingly, only a more holistic examination of impulsive processes and their interplay with reflective processes allows to illuminate under which conditions 'POPC' behavior is truly guided by impulses. Similarly, directly measuring these different influences in joint examinations promises a better understanding of media use in the current 'permanently online' media-rich environment.

Milyavskaya, Inzlicht, Hope, and Koestner (2015) provide another example why scholars should not neglect reflective processing if studying impulsive 'POPC' behavior. They show that the *magnitude* of impulses may vary–depending on whether people follow autonomously chosen or externally imposed long-term goals. Specifically, their studies reveal that want-to goal pursuit (e.g., "I *want* to become a better student and study hard") may diminish impulses as compared to have-to goal pursuit (e.g., "I *have* to become a better student and study hard"). Similarly, Gillebaart and De Ridder (2015) find that people with higher (vs. low) dispositional self-control capacity may perceive identical options as less tempting. Together, these findings suggest that higher-order cognitive processing and the capacity of the reflective system not only affect regulatory efforts, but also the actual magnitude of arising impulses. Accordingly, people that freely commit themselves to long-term goals and that score high on self-control seem better prepared to not act on impulse in face of pleasurable media options, also because they perceive them as less tempting.

Conclusion

In many societies around the globe, media and ICTs have become ubiquitous options in everyday life. People navigate through a media-rich environment that constantly offers incentives for action. The main implication of this media-rich environment resembles that of a nutrition-rich environment like a luxurious buffet: it provides a lot of tempting options whose indulgence may conflict with relevant long-term goals, but impulses arising from a sudden craving may override any reflective restraints. Consistent with this idea (and with similar thoughts expressed by others, e.g., Hofmann et al., 2017), in this chapter, we argued that a media-rich environment is cluttered with media options that people, by their sheer presence (e.g., the smartphone on the table), may constantly become aware of, and which, once their presence is noted, may trigger impulses in the form of strong and automatic affective and behavioral reactions. Impulses, however, may often be incompatible with one's reasoned actions (e.g., intention to complete a primary task) and, thus, result in goal conflicts. Depending on various situational (e.g., fatigue), motivational (e.g., external goal pursuit), and dispositional (e.g., low trait self-control) precursors, impulses to use a media option may override competing reflective self-regulatory processes.

In the present chapter we highlighted some striking similarities in the psychological characteristics of many 'permanently online' phenomena and impulsive behavior. However, to the best of our knowledge, past conceptualizations of these phenomena were not thoroughly based on impulsive processes. Accordingly, the central take-home message of the present chapter is that the application of theory and methods of impulsive processes that guide behavior to the study of 'permanently online' media use in a media-rich environment is a promising avenue for future research. Such an application may add further substance to existing explanations of 'POPC' phenomena and their underlying mechanisms, and help improving theorizing.

To conclude, while much remains to be discovered about how, when and to what extent automatic affective and approach reactions influence people's media choices, we hope to have motivated readers to take the impulsive system into account when trying to make sense of what drives media use in our media-rich environment.

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